



# 2010 NETL CO<sub>2</sub> Capture Technology Meeting

## Sheraton Station Square, Pittsburgh, PA



**September 13-17, 2010**

## The U.S. Department of Energy's Pre-Combustion CO<sub>2</sub> Capture R&D Program

<http://www.netl.doe.gov/publications/index.html>



2010 NETL CO<sub>2</sub> Capture  
Technology Meeting

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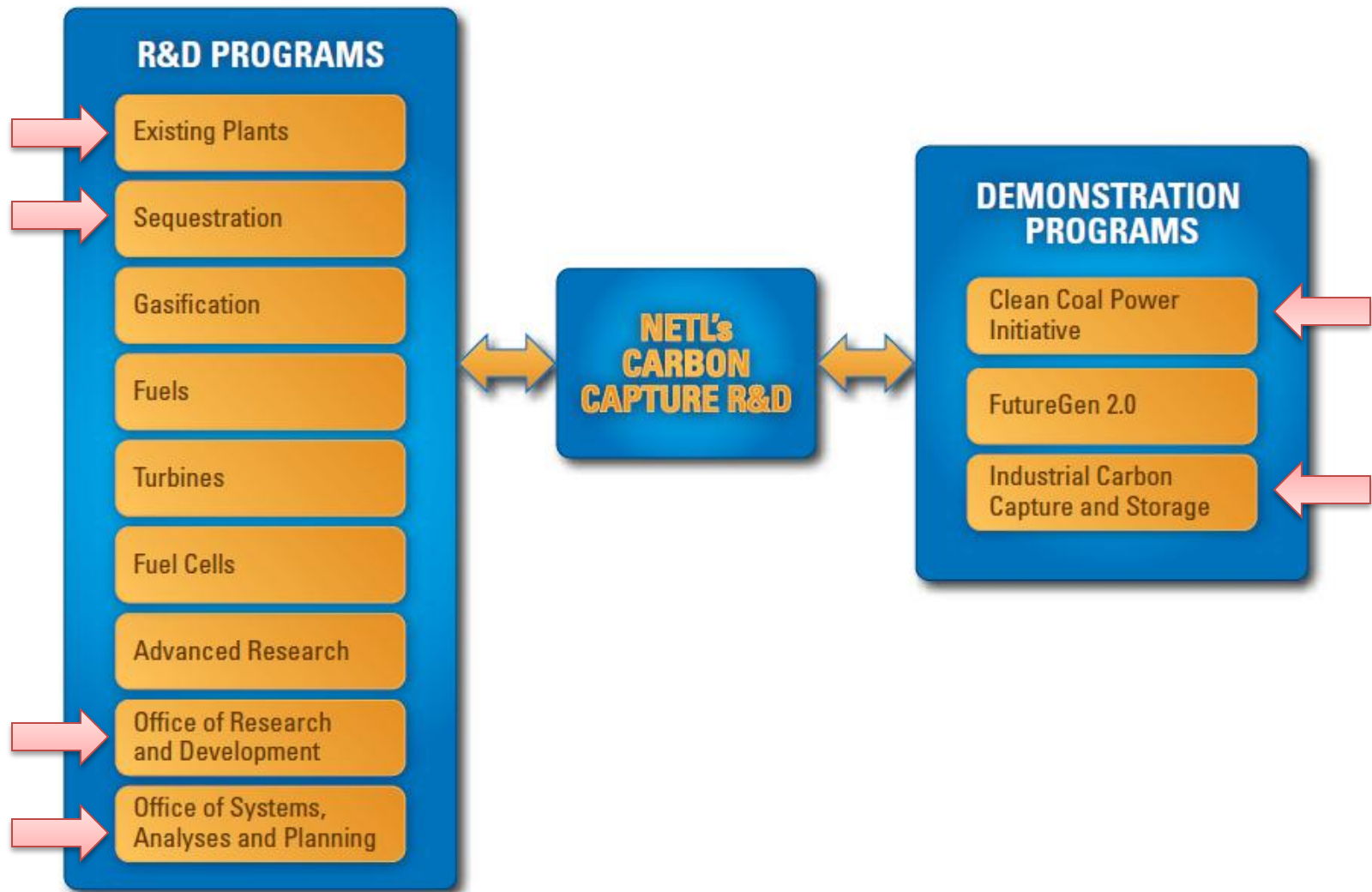
## **The U.S. Department of Energy's Pre-Combustion CO<sub>2</sub> Capture R&D Program**

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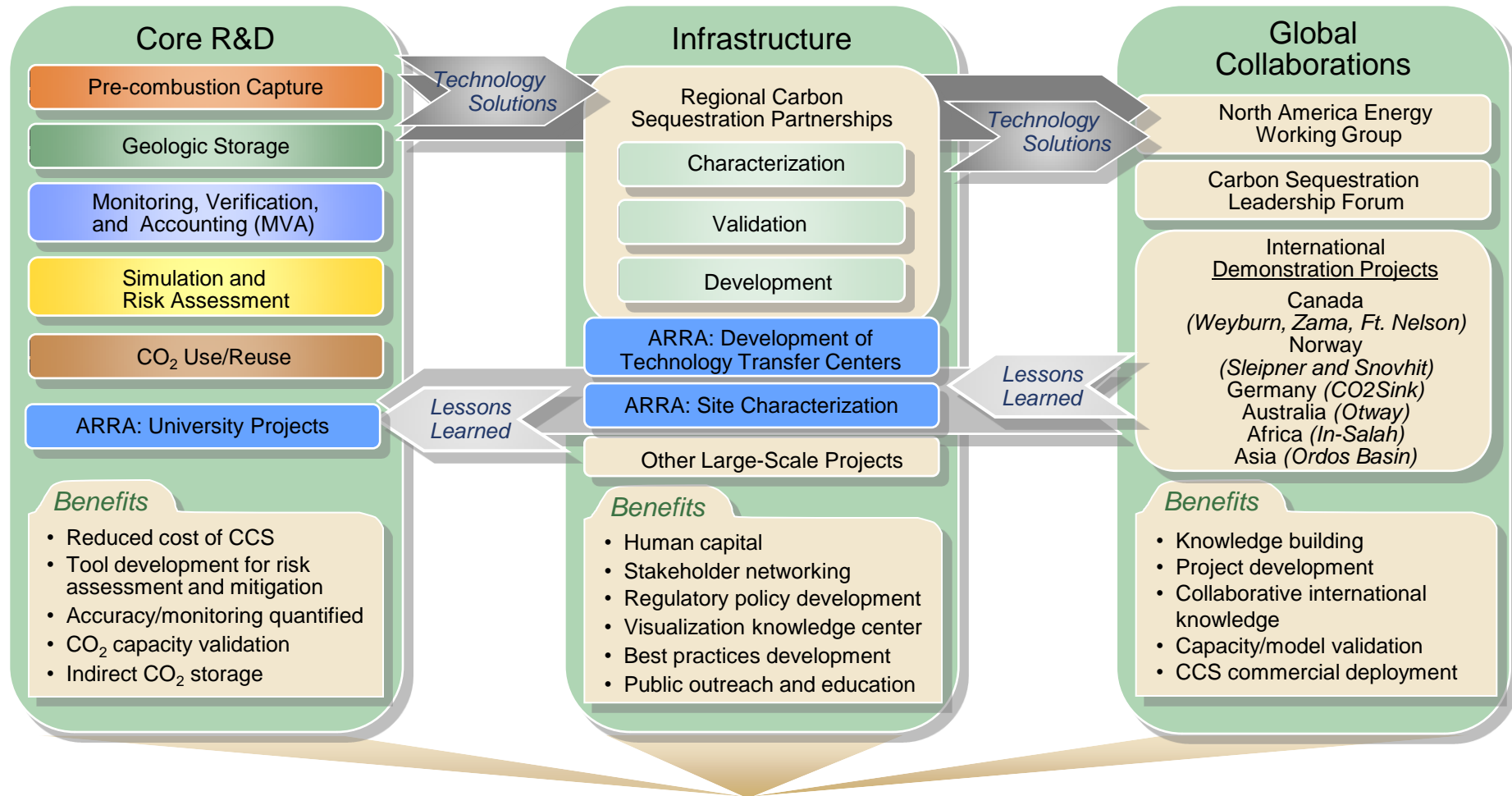
Sean Plasynski, Technology Manager  
John Litynski, Division Director  
Sequestration Program



# DOE/NETL CO<sub>2</sub> Capture RD&D Program



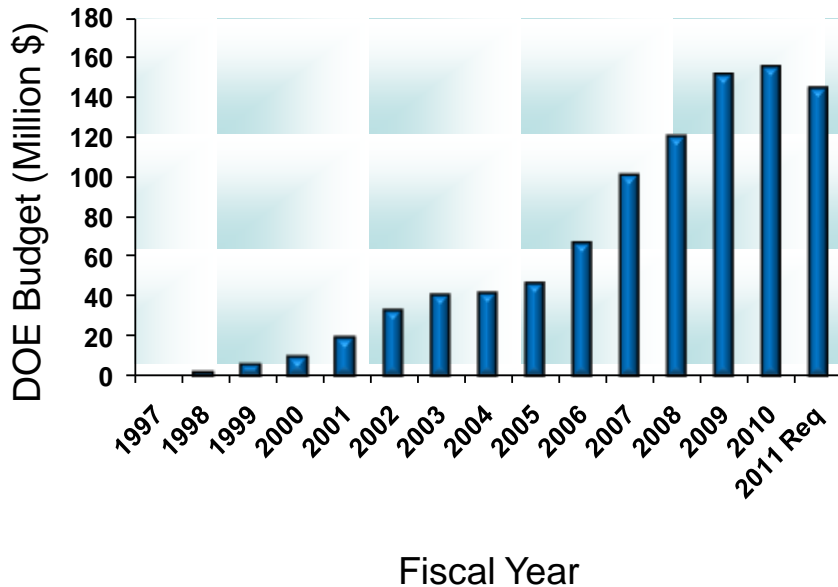
# CARBON SEQUESTRATION PROGRAM *with ARRA Projects*



Demonstration and Commercialization Carbon Capture and Storage (CCS)

# Sequestration Program Total Funding

## Program Statistics 2010 *(no ARRA funding included)*



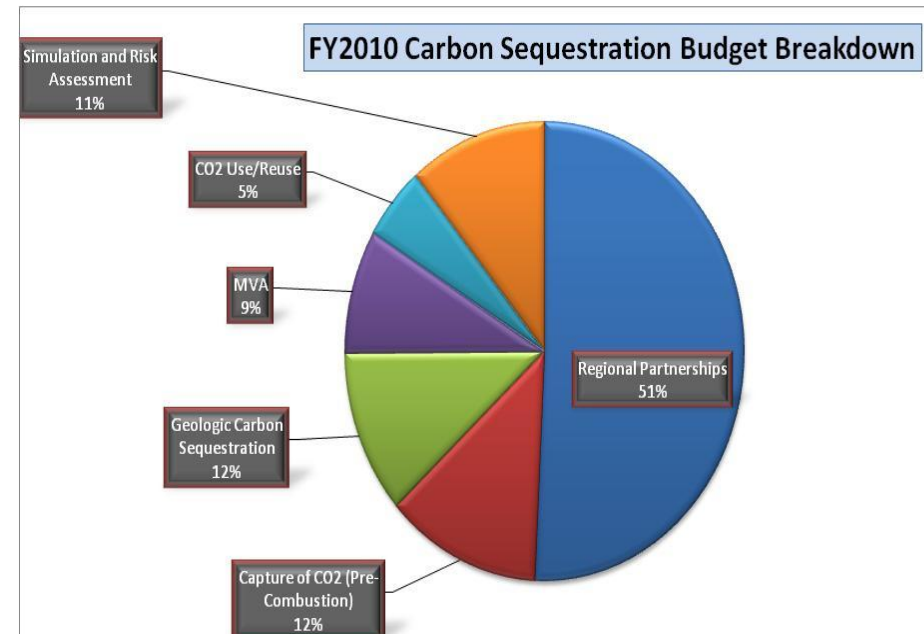
Strong industry support  
~ 39% cost share on projects

### ***Diverse research portfolio***

~ 80 Active R&D Projects

**+21 new starts in FY10**

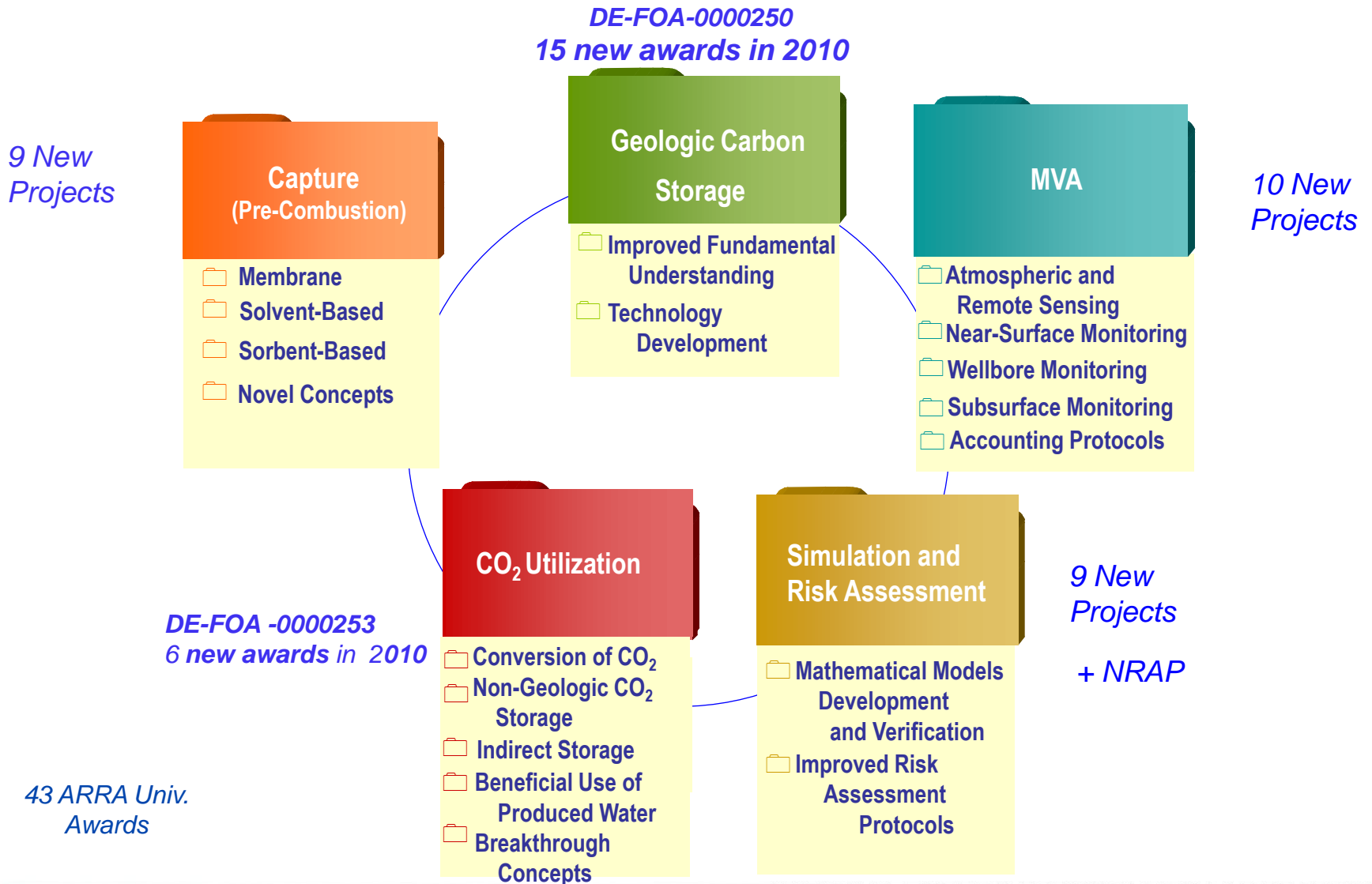
**+ 60 ARRA Projects**



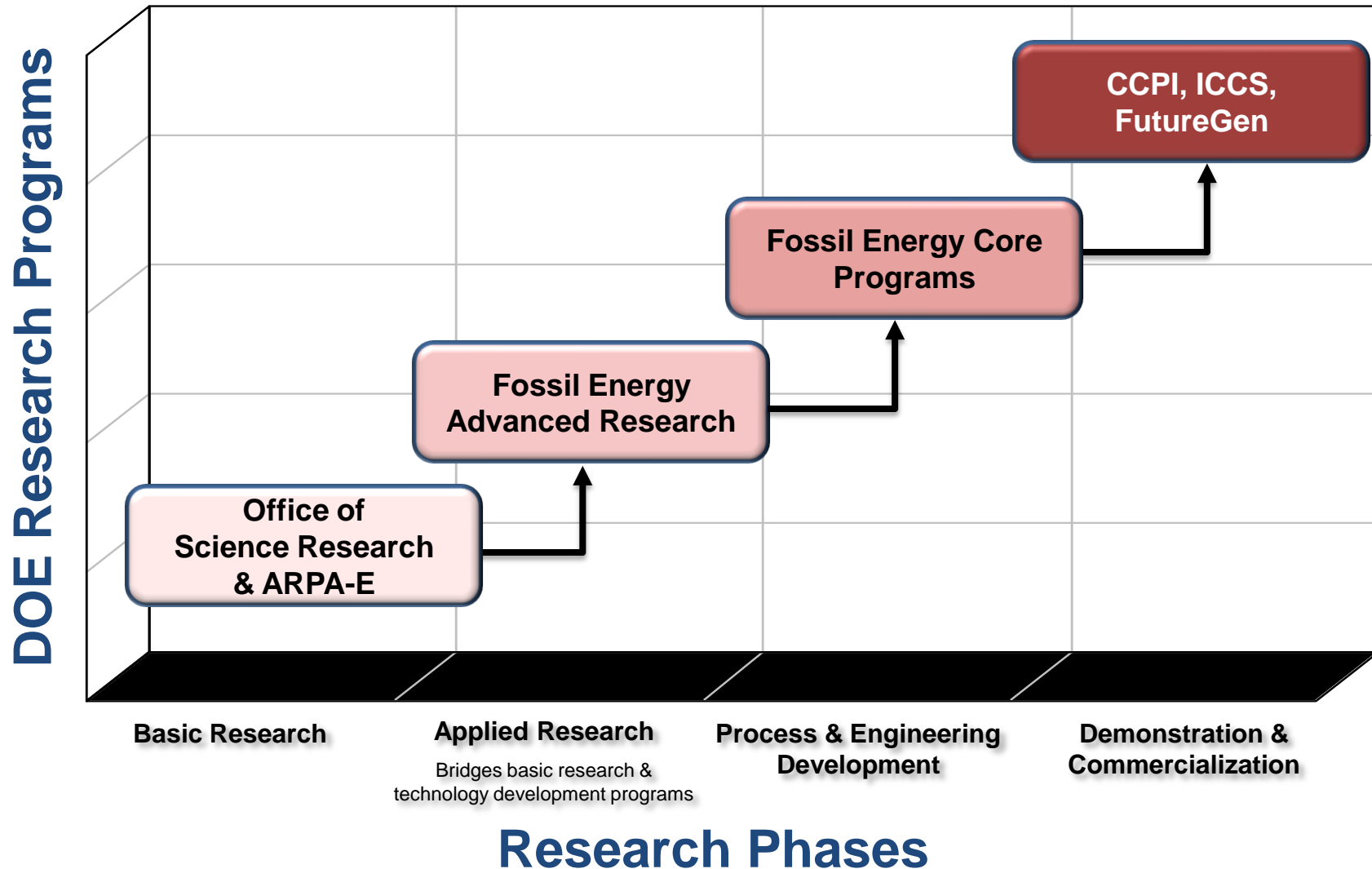


# Building of Core R&D Portfolio

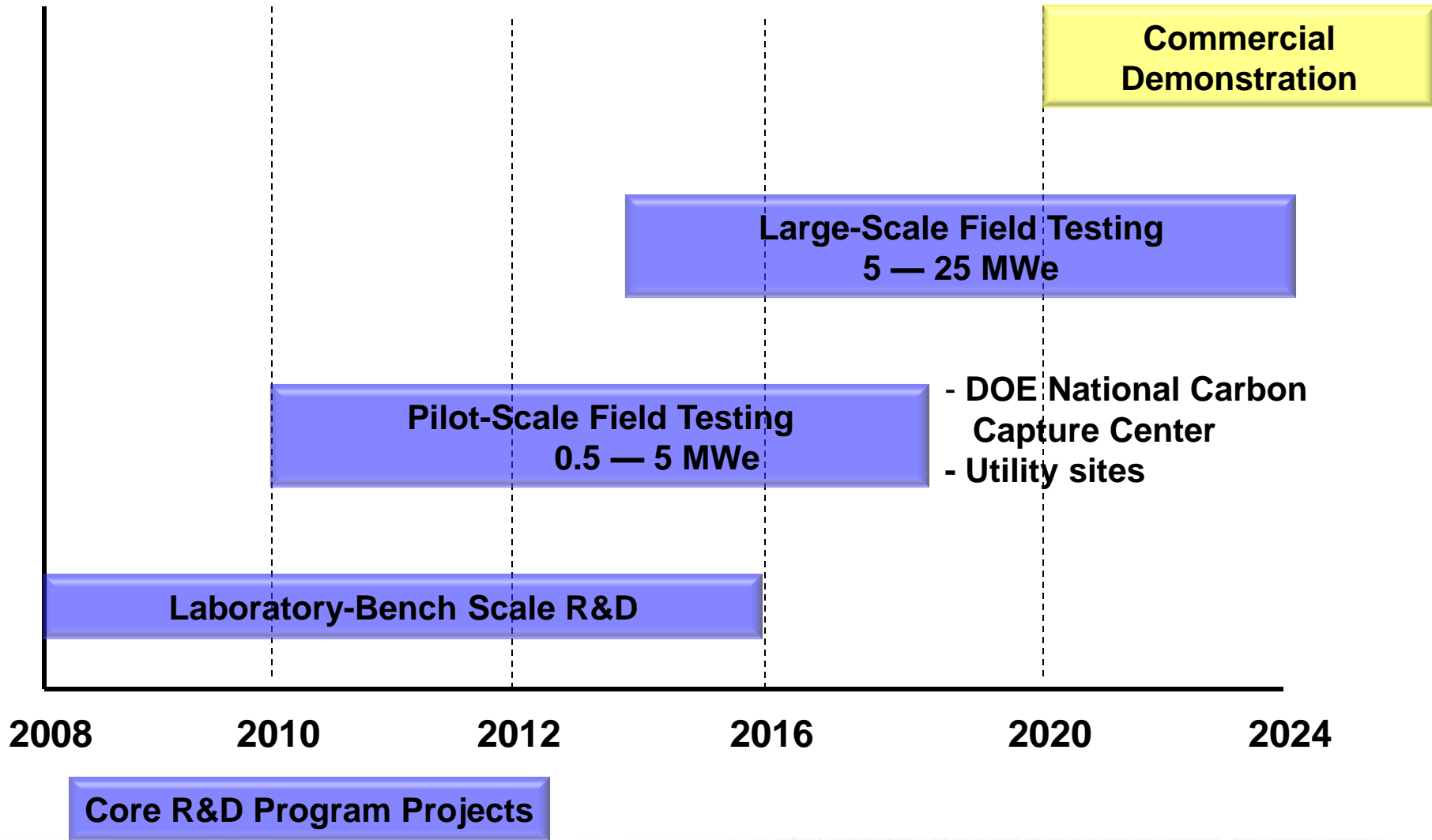
## Core R&D Focus Areas



# Stages of Energy RD&D



# Advanced CO<sub>2</sub> Technology Timeline





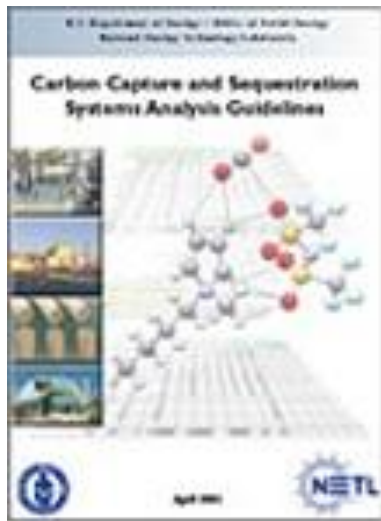
# Pre-Combustion CO<sub>2</sub> Capture Goals

*By 2020, have available for demonstration,  
advanced CO<sub>2</sub> capture technologies that achieve:*

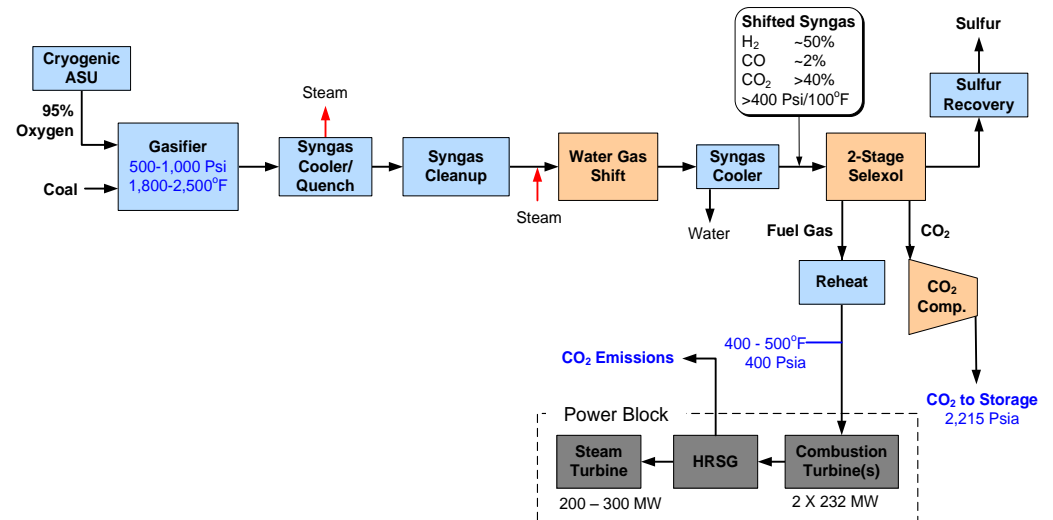
*90% CO<sub>2</sub> capture*

*< 10% increase in COE<sup>2</sup>*

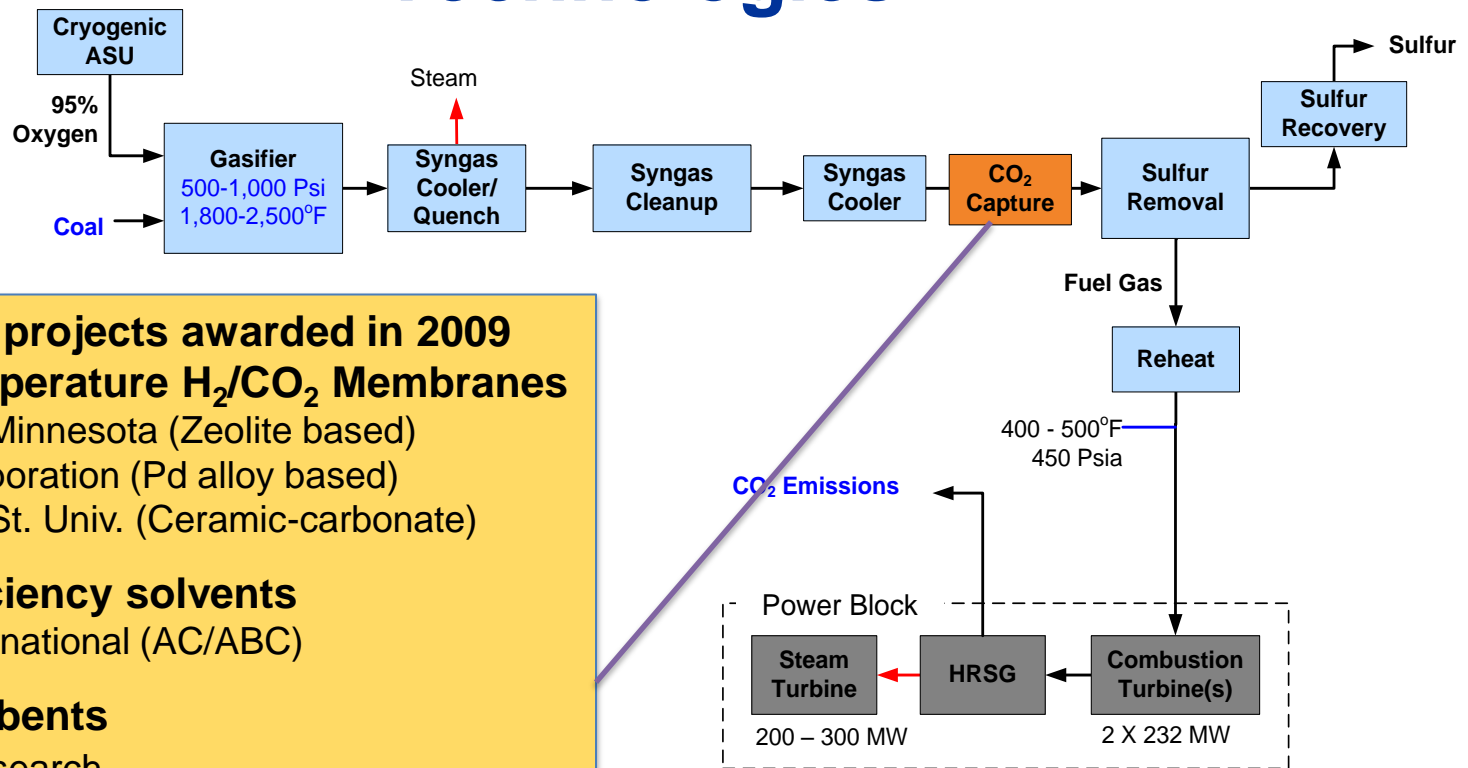
## Set by Systems Analyses



## Evaluated by Systems Analyses



# IGCC Pre-combustion CO<sub>2</sub> Capture Technologies



## 9 new projects awarded in 2009 High Temperature H<sub>2</sub>/CO<sub>2</sub> Membranes

- Univ. of Minnesota (Zeolite based)
- Pall Corporation (Pd alloy based)
- Arizona St. Univ. (Ceramic-carbonate)

## High-efficiency solvents

- SRI International (AC/ABC)

## Solid Sorbents

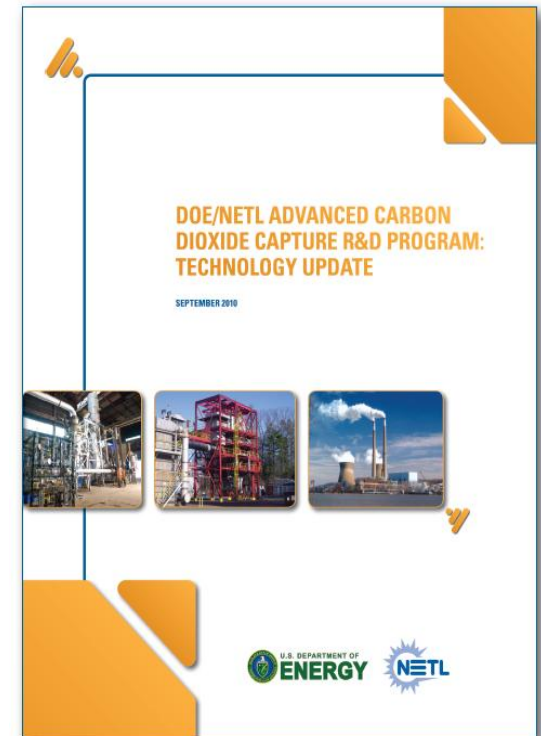
- TDA Research
- URS Group

## Novel Concepts

- Gas Tech. Institute
- Membrane Technology
- New Jersey Institute of Technology

# ***DOE/NETL Advanced CO<sub>2</sub> Capture R&D Program: Technology Update (September 2010)***

- Just published and available for download
- This comprehensive handbook provides an update on DOE/NETL R&D efforts on advanced CO<sub>2</sub> capture technologies for coal-based power systems.
- Prepared by the Existing Plants and Sequestration R&D Programs, the report tracks the progress of DOE/NETL pre-combustion, post-combustion, and oxy-combustion technologies for CO<sub>2</sub> capture.
- The handbook is available for download on the NETL website at these two locations:



<http://www.netl.doe.gov/technologies/coalpower/ewr/index.html>

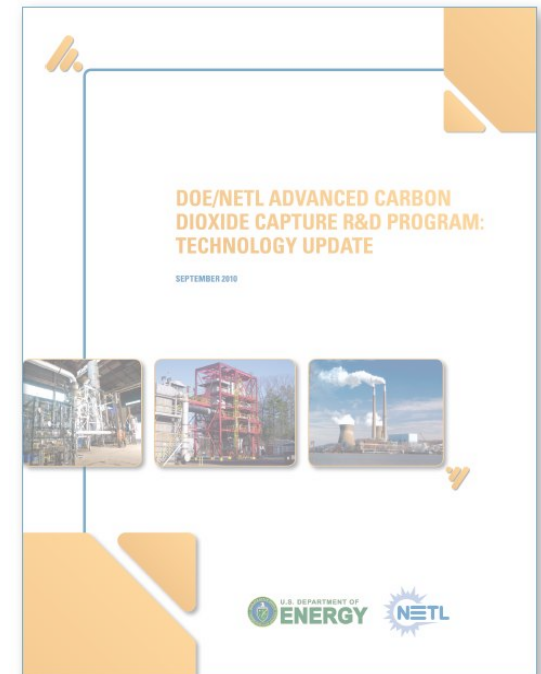
[http://www.netl.doe.gov/technologies/carbon\\_seq/index.html](http://www.netl.doe.gov/technologies/carbon_seq/index.html)

# DOE/NETL Advanced CO<sub>2</sub> Capture R&D Program: Technology Update (September 2010)

- Special request to our Project Principal Investigators:

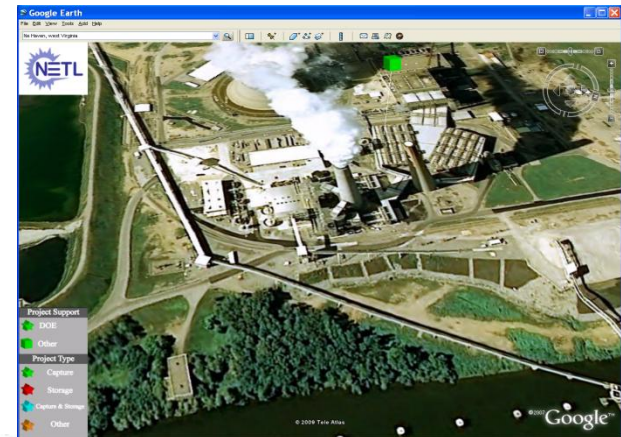
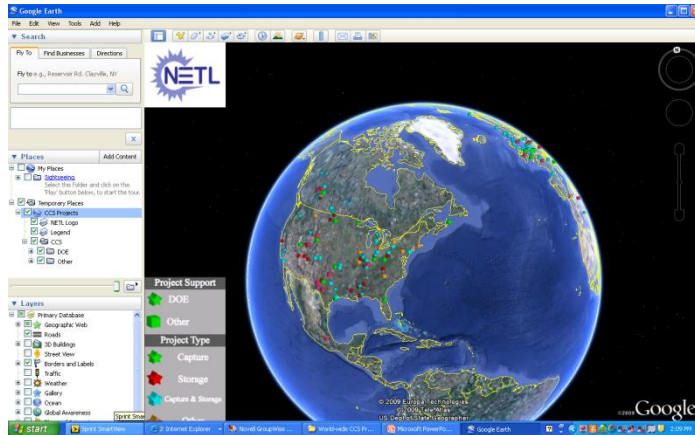
***We need your help in updating and improving the format and content of this handbook for next year's publication.***

- For questions or comments regarding the handbook, please contact:
  - Jared P. Ciferno, Technology Manager, Existing Plants R&D Program (post-combustion and oxy-combustion technologies)  
[jared.ciferno@netl.doe.gov](mailto:jared.ciferno@netl.doe.gov)
  - Sean I. Plasynski, Technology Manager, Sequestration R&D Program (pre-combustion technologies) [sean.plasynski@netl.doe.gov](mailto:sean.plasynski@netl.doe.gov)



# World-Wide CCS Projects Database

- **Data compiled from a multitude of sources**
  - Websites, factsheets, reports, news postings, etc...
- **To date, ~195 projects projects**
  - Includes active, developing, proposed, on hold, or completed)
  - USA: ~ 80 projects
  - International: ~ 115 projects
- **Approximately 125 projects active**
  - Either capturing, injecting, developing infrastructure, site characterization/selection, designing, or in the permitting process.
    - USA Projects: ~ 50 projects
    - International Projects: ~ 75 projects
- [http://www.netl.doe.gov/technologies/carbon\\_seq/database/index.html](http://www.netl.doe.gov/technologies/carbon_seq/database/index.html)





# Visit Our Websites



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